

correctness of whose views is established by so many important discoveries.

On the Attractions of an extensive Class of Spheroids. By James Ivory, A.M. Communicated by Henry Brougham, Esq. F.R.S. Read November 14, 1811. [*Phil. Trans.* 1812, p. 46.]

In his second paper, Mr. Ivory investigates the attractions of that particular class of spheroids mentioned in the former; for though it is to these that the theorems of Laplace may strictly be applied, it is liable to the important objection, that the terms of his series near the beginning cannot be found without previously computing all the rest. The analysis of Mr. Ivory, on the contrary, is direct; and every term of his series is deduced directly from the radius of the spheroid.

In an appendix to these papers, Mr. Ivory adds some remarks upon a memoir of Lagrange, upon the same subject, published at Paris in December 1809, but which had not till lately been received in this country.

An Account of some Peculiarities in the Structure of the Organ of Hearing in the Balæna Mysticetus of Linnæus. By Everard Home, Esq. F.R.S. Read December 12, 1811. [*Phil. Trans.* 1812, p. 83.]

From the time that Mr. Home discovered the muscular structure of the membrana tympani in the elephant, he has been seeking an opportunity of prosecuting the same inquiry on a similar scale, by examining the ear of a whale, and has at length succeeded in procuring the head of a young whale preserved in brine. As the skin had been taken off, a portion of the meatus externus had been removed along with it; but it did not appear that much was lost, as the outward extremity partook of the dark colour of the outer skin of the head. This passage was $5\frac{1}{2}$ inches in length, and only one fourth of an inch in diameter; but near the tympanum it widened to about $1\frac{1}{4}$ inch, and this is the breadth of the membrana tympani itself.

This membrane, instead of being concave externally as usual, is convex, so as to project nearly an inch into the meatus externus. The membrane consists of four parts: first, a cuticular covering, next a strong membrane, then a layer of muscular fibres; and lastly, another membranous lining towards the tympanum. It is remarkable that this membrane has no connexion whatever with the handle of the malleus, as in other animals.

The cavity of the tympanum is of an oval shape, capable of containing a pint of fluid, surrounded by the concave surface of a large bone peculiar to the whale, detached from the skull, and having only a loose connexion with the petrose portion of the temporal bone. This cavity terminates, as usual, in the eustachian tube, which is $2\frac{1}{2}$ inches long, terminating by a small aperture, having a valvular structure, and opening into the canal leading to the blow-hole.